

## Claims

1. A plate heat exchanger adapted to exchange heat between at least one high temperature fluid and at least one cooling fluid comprising a plurality of stacked heat exchanger plates (21, 31) each of which comprising: (a) an inlet opening (3) for the high temperature fluid, (b) an outlet opening (4) for a cooling fluid (c) an outlet opening (5) for the high temperature fluid and (d) an inlet opening (6) for the cooling fluid, the stacked heat exchanger plates limiting channels for at least two heat exchanging fluids, and in which pairs of plates limiting channels for a cooling fluid are soldered together along contact areas (10) to form flanges extending into the inlet of the flow of high temperature fluid,

characterised in that two separate channels (23, 26) for a cooling fluid are provided adjacent to said contact areas (10) forming a flange extending into the flow of said high temperature fluid passing through the inlet opening (3), the said two separate channels (23, 26) for the cooling fluid being provided with a common inlet (24), and with a common outlet (25), the said common inlet (24) being located at a higher flow pressure position than that of the said common outlet (25), one (23) of the said channels (23, 26) being partly limited by a pressed ridge (22) in one (21) of the said plates (21, 31) forming said pairs of plates limiting channels for the cooling fluid, the said pressed ridge (22) being adapted to contact a corresponding ridge (32) on the other plate (31) in said pair (21, 31) of plates, the said one channel (23) adjacent to the said pressed ridge (22) having less height than the said pressed ridge (22).

2. A plate heat exchanger according to claim 1,

characterised in that in each heat exchanger plate the said inlet opening (3) for the said flow of high temperature fluid is of larger area than that of the outlet opening (5) for said high temperature fluid.

3. A plate heat exchanger according to claim 1 or 2,

characterised in that it is adapted for a gas as said high temperature fluid.

4. A plate heat exchanger according to any of the claims 1-3, characterised in that each heat exchanger plate is of generally rectangular shape and that the inlets and outlet openings (3-6) for the heat exchanging fluids are placed near the corners thereof.

5. A plate heat exchanger according to claim 1, characterised in that it is designed for three heat exchanging fluids:

- (i) one heating, high temperature fluid and
- (ii) two cooling fluids. (Figure 7).

6. A plate heat exchanger according to claim 5, characterised in that the inlet (3) of the heating fluid has been placed remote from the inlet (6) and from the outlet (4) for one of the two cooling fluids. (Fig. 9).

7. A plate heat exchanger according to claim 1, characterised in that it has been designed for three heat exchanging fluids: (i) two heating fluids and (ii) one cooling fluid, the inlet (3, 3') and the outlet (5, 5') openings for the heating fluids being placed on both sides of the openings (4, 6) for the cooling fluid. (Fig. 11)